

Monthly Progress Report

Submitted to: Mr. Frank Battaglia, Project Manager
USEPA Region I
Waste Management Building
90 Canal Street
Boston, MA 02114

Submitted by: Ms. Diane Leber, Project Coordinator
CIBA-GEIGY Corporation
444 Sawmill River Road
Ardsley, NY 10502

Pursuant to: RCRA I-88-1088

Facility Site: Cranston, RI

Period Covered: October 1992 (26 September 1992 – 23 October 1992)*

Date Submitted: 10 November 1992

REC'D 11-5-92
FB
NAME: Ciba Geigy
I.D. NO: RID001194323
FILE NO: R-9
OTHER:

1.0 SUMMARY

This is the twenty-eighth monthly progress report. Five significant events occurred this month.

Hydrological Investigation. Stage height measurements of the river continued. Riverbed sediment adjacent to the Production Area was sampled to determine whether compositing sediment samples has an impact on the concentration of VOCs; reduction and interpretation of these data began.

Water Level Monitoring. Monthly groundwater level monitoring continued.

Stabilization Investigation. Construction of the pilot waste water pretreatment system was completed on 9/30/92. Planning for other stabilization/Phase II activities continued. On 9/28/92, a release of untreated sewage from the City of Cranston force main was discharged to the Production Area surface near the recovery wells. Groundwater from selected wells was sampled to determine if the release impacted the ability of the pretreatment system to treat groundwater pumped during aquifer testing. Clean Harbors was contracted to clean up the sewage release; the cleanup was completed on 10/12/92. On 10/9/92, a letter was sent to the USEPA describing the release; this letter is presented in Attachment A. The 72-hour constant rate test of RC-2 was begun on 10/12/92 and completed on 10/15/92. The HIVAC dual-phase extraction pilot test ("HIVAC pilot test") began on 10/20/92 and was completed on 10/21/92. Groundwater samples were sent to the CIBA-GEIGY Corporate Environmental Testing Laboratory for VOC analysis; air samples were sent to Savannah Laboratories for VOC analysis. Pretreatment of groundwater collected during aquifer testing is underway. On 10/2/92, the permit to discharge pretreated groundwater was obtained from the Cranston POTW.

Health and Safety Assurance. Because the sewage released might contain contaminants and/or bacteria harmful to human health, the potential impact of the release of untreated sewage was investigated by sampling and analyzing the sludge for selected metals. An Addendum to the Health and Safety Plan was prepared.

*As agreed, the reporting period will be monthly through the fourth Friday of the month.



SEMS DocID 666716

Project Management. Personnel from RIDEM visited the site on 10/8/92 to oversee the cleanup of the release of untreated sewage. Personnel from the USEPA visited the site on 10/21/92 to oversee the HIVAC pilot test and see the pilot pretreatment system in operation.

2.0 TASKS AND ACTIVITIES COMPLETED

The sampling and other activities (subtasks) that were completed are reported here.

2.1 Sampling Activities Completed

The following samples were collected:

<u>Sampling Activity</u>	<u>Location(s)</u>	<u>Date(s) Sampled</u>	<u>No. of Samples</u>	<u>Date(s) Sent for Analysis</u>	<u>Analysis</u>
<i>Groundwater Sampling</i>	MW-1S	10/1	1	10/1	A
	MW-2S	10/1	1	10/1	A
	RC-1	10/1	1	10/1	A
	RC-2	10/1	1	10/1	A
<i>Sludge Sampling</i>	Prod Area	10/1	1	10/1	B
<i>Riverbed Sediment Sampling</i>	SD-1	10/1	1	10/1	C
	SD-2	10/1	1	10/1	C
	SD-3	10/1	1	10/1	C
	SD-4	10/1	1	10/1	C
	SD-5	10/1	1	10/1	C
	SD-6	10/1	1	10/1	C
	SD-7	10/1	1	10/1	C
	SD-8	10/1	1	10/1	C
	SD-9	10/1	1	10/1	C
	SD-10	10/1	1	10/1	C
	SD-11	10/1	1	10/1	C
	SD-12	10/1	1	10/1	C
	SD-13	10/1	1	10/1	C
	SD-14	10/1	1	10/1	C
	SD-15	10/1	1	10/1	C
	SD-16	10/1	1	10/1	C
<i>HIVAC Pilot Test Air Sampling</i>	VE-2	10/20-21	4	10/21	C
<i>HIVAC Pilot Test Groundwater Sampling</i>	VE-2	10/20-21	3	10/21	C
<i>Effluent Groundwater Sampling</i>	EFF-2	10/12-13	1	10/14	D

A = POTW/NPDES parameters, selected metals, and fecal coliforms

B = selected metals

C = volatile organic compounds

D = volatile and semi-volatile compounds, selected metals, and total cyanide

2.2 Other Activities Completed

The other activities (subtasks) completed during this reporting period were described in Section 1.0.

3.0 JEOPARDY TASKS (scheduled tasks not completed)

No tasks were in jeopardy as of 23 October 1992.

4.0 OTHER TASKS UNDERWAY (and on schedule)

The tasks that were underway (and on schedule as of 23 October 1992) were described in Section 1.0.

5.0 DATA OBTAINED

Groundwater level data have been obtained but have not yet been peer reviewed. Continuous groundwater level data from the automatic recorders (transducers) were downloaded but have not yet been processed. Stage height measurements of the river were obtained on 10/12/92; the data have not yet been peer reviewed. Analytical data from groundwater sampling of the newly installed wells in the Production Area were received; validation of these data has begun. Analytical results from riverbed sediment samples (to evaluate the impact of compositing on VOC concentrations) have been received but have not yet been reduced and interpreted. Data from the 72-hour constant rate test of RC-2 have been received but have not yet been reduced and interpreted. Analytical results from the first effluent sample treated by the pretreatment system were received (before the sewage release); the results indicated that the pretreatment system was meeting the POTW requirements. These data are presented in Attachment B. Analytical results for groundwater samples from wells impacted by the sewage release, as well as results for the sludge itself, are presented in Attachment C.

6.0 PROBLEM AREAS

The resolved, new, potential (i.e., anticipated or possible), and outstanding (i.e., still unresolved) problem areas are reported here.

6.1 Resolved Problem Areas

Two new problem areas were resolved during this reporting period.

Untreated Sewage Released onto the Production Area Delayed Stabilization Activities

Review of the Problem. On 9/28/92, about 200,000 gallons of untreated sewage were released onto the Production Area surface (as described in Section 1.0 and Attachment A) near the recovery wells newly installed for aquifer testing (as part of the stabilization investigation). Some of the released sewage infiltrated the upper aquifer in the Production Area, and may have contained constituents that could affect the ability of the pretreatment system to treat pumped groundwater. Aquifer testing and start-up of the pretreatment system were to have begun on 9/30/92 but the impact of the release had to be determined, and the sludge had to be removed from the Production Area, before aquifer testing could begin. As a result, aquifer testing and pretreatment stabilization activities were delayed.

Resolution. The sludge was sampled and analyzed for selected metals. To evaluate if the ability of the pretreatment system to treat pumped groundwater has been impacted, groundwater was sampled from two monitoring wells and two recovery wells in the area affected by the release; the samples were analyzed for POTW/NPDES parameters, selected metals, and fecal coliforms. The sludge and contaminated soil were excavated, chemically characterized, staged on-site in lined roll-off containers, and will be disposed in a secure landfill. A remediation contractor (Clean Harbors) visited the site on 10/2/92; the contractor was authorized to clean up the sewage and contaminated soil. Cleanup began on 10/7/92; excavating the sludge and soil contaminated from the sewage release was completed on 10/12/92. Personnel from RIDEM visited the site on 10/8/92 to oversee the cleanup. Overall, the stabilization investigation has been delayed by about two weeks because of the sewage release.

HIVAC Pilot Test Impacted the Schedule for Other Aquifer Testing

Review of the Problem. The data from the test of RC-2 suggested that performing the 72-hour test of RC-1 and the HIVAC pilot test concurrently would yield results that are artifactual for both tests.

Resolution. The HIVAC pilot test was performed first, followed by the 72-hour constant rate test of RC-1. Performing these tests sequentially extended the schedule for completing the stabilization investigation by about one week.

6.2 New Problem Areas

No new problem areas remained unresolved during this reporting period.

6.3 Potential Problem Area

One potential problem area was identified during this reporting period.

Delays in Stabilization Activities May Require Modifying the Scope of Work

Review of the Problem. Delays have been caused by:

- the release of untreated sewage in the Production Area (discussed in Section 6.1),
- unplanned TCLP analyses of groundwater generated during step-drawdown tests,
- the delayed delivery of the pretreatment system, and
- performing the HIVAC pilot test and the 72-hour test of RC-1 sequentially instead of concurrently.

These delays have extended the schedule for aquifer testing and treatment of groundwater. Because the pretreatment system was not designed to operate in the cold winter months, the scope of work may need to be modified.

Plans for Resolution. The potential impacts of these delays on the scope of work are being investigated. Any change in the scope of work proposed will be reviewed with the USEPA.

6.4 Outstanding Problem Areas

No problem areas remained unresolved during this reporting period.

7.0 SCHEDULE OF TASKS (next two months)

The projected schedule is provided here. It covers the tasks to be performed in the next two months (November and December 1992), along with other comments or considerations.

Target Date	Task#	Task	Comments/Considerations
ongoing	—	Stabilization	
ongoing	9	Project Management	
ongoing	10	Data Management	
ongoing	11	Project Administration	
ongoing	12	Quality Assurance	
ongoing	13	Health & Safety Assurance	

8.0 CHANGES IN WORK PLAN

No changes were made to the Work Plan during this reporting period.

9.0 OTHER COMMENTS

The plans going forward into November and December include:

- completing the stabilization investigation field activities,
- beginning to develop the Stabilization Investigation Report and Design Concepts Proposal, and
- additional planning for future investigations.

The following documents are appended:

- Attachment A — Letter to USEPA Describing the Release of Untreated Sewage
- Attachment B — Analytical Results from Sampling Pretreatment System Effluent
- Attachment C — Analytical Results from Groundwater and Sludge Samples

ATTACHMENT A

Letter to USEPA Describing the Release of Untreated Sewage

CIBA-GEIGY Facility
Cranston, Rhode Island

November 2, 1992

RCRA I-88-1088

Woodward-Clyde Consultants



Engineering & sciences applied to the earth & its environment

October 9, 1992
87X4660-6.30

Mr. Frank Battaglia
USEPA Region I
Waste Management Building
90 Canal Street
Boston, MA 02114

**Re: Untreated Sewage Release
at the Former CIBA-GEIGY Facility
in Cranston, Rhode Island**

Dear Mr. Battaglia:

On September 28, 1992, a subsurface vault (from a city force main) leaked untreated sewage onto the surficial soils (and pavement) in the southern part of the Production Area. The force main, which originates from the Cranston Pumping Station, pumps untreated sewage from offsite sources through the facility via City of Cranston right-of-way to the Cranston publicly owned treatment works (POTW). The subsurface vault is located in the southeastern corner of the Production Area, near where the force main changes direction and continues northwesterly through the facility (Figure 1). Upon detection of the sewage, the Cranston Sewer Department, Rhode Island Department of Environmental Management, and the United States Environmental Protection Agency were notified. To locate the source of the leak, city employees pumped out the contents of the vault and discharged approximately 200,000 gallons of untreated sewage onto the surface of the Production Area. Untreated sewage backed up along the entire length of the bulkhead before discharging to the Pawtuxet River or infiltrating into the groundwater. A layer of residual sludge covered the impacted area after the water drained.

CORRECTIVE ACTION

Three actions will be (or have been) performed to address the sewage release. A description of each action is presented here.

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Mr. Frank Battaglia
USEPA Region I
October 9, 1992
Page 2

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Consultants**

Repairs to the source of the release have been completed. The Cranston Sewer Department determined that a corroded 6-inch plug at the base of the force main (perhaps used for drainage) was the cause of the release. To prevent further leakage from this source, a steel band clamp was secured around the force main. Repairs by sewer department personnel were completed on September 29, 1992.

Remediate areas impacted by release. Sewage contaminated areas in the Production Area have been delineated with barrier tape. Sewage sludge and contaminated soils will be scrapped off, staged in lined roll-off containers, chemically characterized, and then disposed of at a secure landfill. Site cleanup activities will be performed by Clean Harbors (of Providence, Rhode Island). All cleanup activities will be performed in accordance with OSHA Regulations 1910.120.

Sample groundwater to determine if new contaminants (if detected) will be problematic. The pilot pretreatment system was designed using groundwater data from five wells located in the vicinity of the new recovery wells. If new contaminants are detected in the shallow aquifer (as a result of the release), the ability of the pilot pretreatment system to treat water generated during aquifer testing may be impacted. The system was not designed to remove sewage related contamination, such as nutrients and natural organic loadings (as indicated by BOD and TKN). Our major concern will be if the new types of contaminants would clog or interfere with our treatment train. To ensure that the pretreatment system will meet the discharge limits specified by the POTW, monitoring wells affected by the release have been sampled. On September 30, 1992, four monitoring wells (MS-1S, MW-2S, RC-1, and RC-2) were sampled for: POTW/NPDES parameters, nutrients, major ions, and selected metals. Prior to resuming aquifer testing, these data will be evaluated to ensure that the system's ability to meet discharge limits will be met.

Mr. Frank Battaglia
USEPA Region I
October 9, 1992
Page 3

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Consultants**

IMPACT TO THE PROJECT SCHEDULE

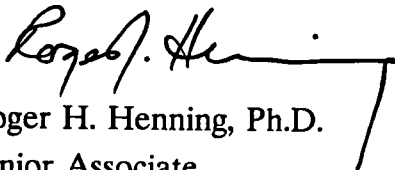
The release of untreated sewage into the Production Area delayed further the start of aquifer testing by an additional two weeks. Aquifer testing was scheduled to start the week of September 28, 1992 (the day the release occurred). Before this task can resume, the sludge and contaminated soil will have to be cleaned up from the impacted areas. Remediation of the impacted areas was begun on October 7, 1992. The work is expected to take two to three days to complete. Aquifer testing is scheduled to resume on October 12, 1992.

Should you have any questions or comments, please feel free to contact us.

Very truly yours,



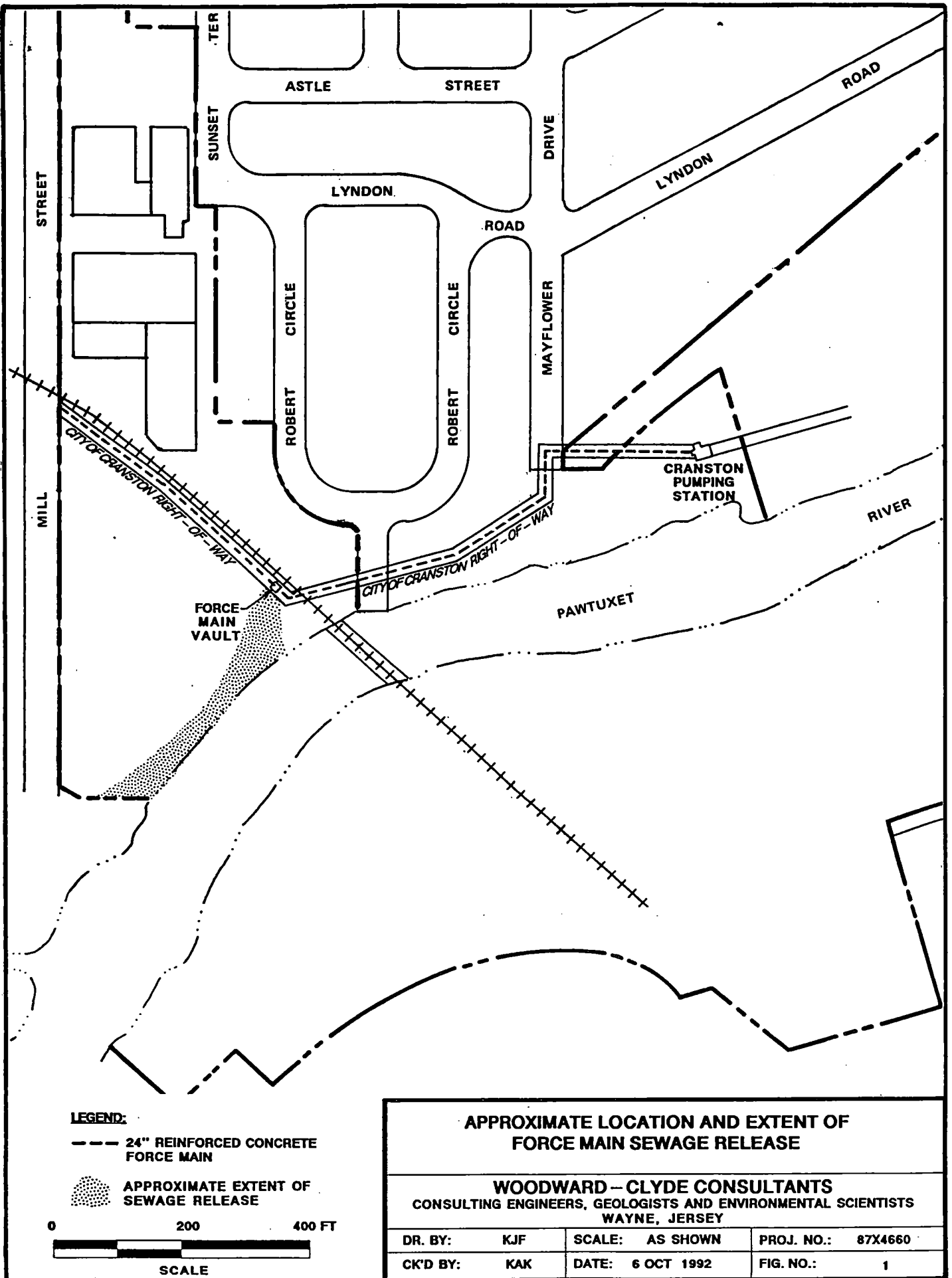
Mark Houlday
Project Manager



Roger H. Henning, Ph.D.
Senior Associate

MH:RJH:cd

cc: Diane Leber



ATTACHMENT B

Analytical Results from Sampling Pretreatment System Effluent

CIBA-GEIGY Facility
Cranston, Rhode Island



R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Woodward-Clyde Consultants
201 Willowbrook Blvd.
P.O. Box 290
Wayne, NJ 07470
Attn: Mr. Mark Houlday

DATE RECEIVED: 10/14/92
DATE REPORTED: 10/19/92
P.O. #:
INVOICE NUMBER: E5986


SAMPLE DESCRIPTION: Five (5) wastewater samples labelled
Ciba-Geigy, Cranston, collected 10/12-10/13/92

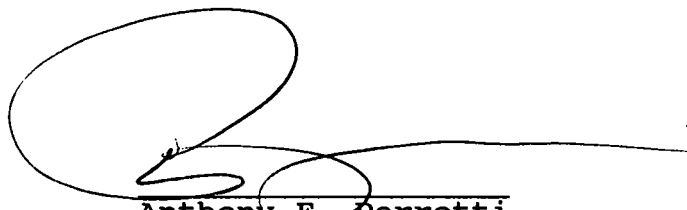
Subject samples have been analyzed by our laboratory with the attached results.

Reference: Guidelines Establishing Testing Procedures For The Analysis of Pollutants, 40CFR, Part 136, July 1986.

If you have any questions regarding this work or if we may be of further assistance, please contact us.

Approved by:


Michael S. Rose
Laboratory Manager


Anthony E. Perrotti
President

WCC:cmc

CERTIFICATE OF ANALYSIS

Woodward-Clyde Consultants

DATE RECEIVED: 10/14/92

DATE REPORTED: 10/19/92

P.O. #:

INVOICE #: E5986

PARAMETER	EFFLUENT 2A	EFFLUENT 2B	EFFLUENT 2C	EFFLUENT 2D
Volatile Organic Compounds (Method#624):	ND	ND	ND	ND
Acrolein	<5 µg/l	<5 µg/l	<5 µg/l	<5 µg/l
Acrylonitrile	<5 "	<5 "	<5 "	<5 "

Note: A list of volatile organic compounds tested for and their detection limits are attached.

R.I. ANALYTICAL LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Consultants

Date Received: 10/14/92

Date Reported: 10/19/92

Invoice #: E5986

PARAMETER

EFFLUENT 2

Total Cyanide

<0.01 mg/l

Total Metals:

Antimony

<0.005 mg/l

Arsenic

<0.005 "

Beryllium

<0.01 "

Cadmium

<0.01 "

Chromium

<0.03 "

Copper

<0.05 "

Lead

<0.04 "

Manganese

<0.02 "

Mercury

<0.0005 "

Nickel

<0.02 "

Silver

<0.02 "

Zinc

<0.02 "

Semi- Volatile Organic
Compounds (Method#625)

ND

Note: A list of semi volatile organic compounds tested for and their detection limits are attached.

R.I. ANALYTICAL LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Consultants

Date Received: 10/14/92

Date Reported: 10/19/92

Invoice #: E5986

Volatile Organic Compounds Method #624

chloromethane
bromomethane
vinyl chloride
dichlorodifluoromethane
chloroethane
methylene chloride
trichlorofluoromethane
1,1-dichloroethylene
1,1-dichloroethane
trans-1,2-dichloroethylene
chloroform
1,2-dichloroethane
1,1,1-trichloroethane
carbon tetrachloride
bromodichloromethane
1,2-dichloropropane
cis-1,3-dichloropropylene
trichloroethylene
trans-1,3-dichloropropylene
1,1,2-trichloroethane
dibromochloromethane
bromoform
tetrachloroethylene
1,1,2,2-tetrachloroethane
chlorobenzene
2-chloroethyl vinyl ether
dichlorobenzenes
benzene
toluene
ethylbenzene
xylenes

Detection Limit: 1 µg/l

RI ANALYTICAL LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

Woodward Clyde Consultants
Date Received: 10/14/92
Date Reported: 10/19/92
Invoice #: E5986

SEMI-VOLATILE ORGANIC COMPOUNDS Method #625

Base/Neutral Extractables:

acenaphthene
acenaphthylene
anthracene
benzidine
benzo(a)anthracene
benzo(b)fluoranthene
benzo(k)fluoranthene
benzo(g,h,i)perylene
benzo(a)pyrene
bis(2-chloroethyl)ether
bis(2-chloroethoxy)methane
bis(2-chloroisopropyl)ether
bis(2-ethylhexyl)phthalate
4-bromophenyl phenyl ether
butylbenzyl phthalate
2-chloronaphthalene
4-chlorophenyl phenyl ether
chrysene
dibenzo(a,h)anthracene
di-n-butyl phthalate
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
3,3'-dichlorobenzidine
diethyl phthalate
dimethyl phthalate
2,4-dinitrotoluene
2,6-dinitrotoluene
di-n-octyl phthalate
1,2-diphenylhydrazine
fluoranthene
fluorene

hexachlorobenzene
hexachlorobutadiene
hexachlorocyclopentadiene
hexachloroethane
Indeno(1,2,3-cd)pyrene
isophorone
naphthalene
nitrobenzene
N-nitrosodimethylamine
N-nitrosodiphenylamine
N-nitrosodi-n-propylamine
phenanthrene
pyrene
1,2,4-trichlorobenzene

Acid Extractables:

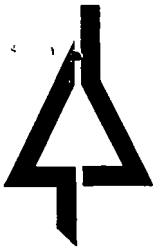
4-chloro-3-methylphenol
2-chlorophenol
2,4-dichlorophenol
2,4-dimethyl phenol
2-methyl-4,6-dinitrophenol
2,4-dinitrophenol
2-nitrophenol
4-nitrophenol
pentachlorophenol
phenol
2,4,6-trichlorophenol

DETECTION LIMIT: 10 µg/l

ATTACHMENT C

Analytical Results from Groundwater and Sludge Samples

CIBA-GEIGY Facility
Cranston, Rhode Island



R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Woodward-Clyde Consultants
201 Willowbrook Blvd.
P.O. Box 290
Wayne, NJ 07470
Attn: Mr. Mark Houlday

DATE RECEIVED: 10/01/92
DATE REPORTED: 10/06/92
P.O. #:
INVOICE NUMBER: E5775

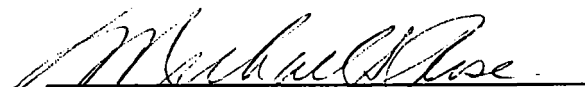
SAMPLE DESCRIPTION: Four (4) liquid samples labelled Ciba-Geigy


Subject samples have been analyzed by our laboratory with the attached results.

Reference: Guidelines Establishing Testing Procedures For The Analysis of Pollutants, 40CFR, Part 136, July 1986.

If you have any questions regarding this work or if we may be of further assistance, please contact us.

Approved by:


Michael S. Rose
Laboratory Manager


Anthony E. Perrotti
President

cmc

CERTIFICATE OF ANALYSIS

Woodward-Clyde Consultants

DATE RECEIVED: 10/01/92

DATE REPORTED: 10/06/92

P.O. #:

INVOICE #: E5775

PARAMETER	RC-1 SS	RC-2 SS	MW18 SS	MW28 SS
T. Sus. Solids (mg/l)	25.8	49.1	11.8	11.9
T. Dis. Solids (mg/l)	241	210	396	324
Chloride (mg/l)	24.7	53.1	15.1	21.0
COD (mg/l)	29.3	7.90	118	79.0
BOD ₅ (mg/l)	<3	<3	17	20
Ammonia (as N) (mg/l)	0.05	0.04	7.00	13.2
T.Kjeldahl Nitrogen (mg/l)	1.92	0.34	22.5	28.3
Nitrate (as N) (mg/l)	0.06	0.18	0.29	0.06
Nitrite (as N) (mg/l)	<0.01	<0.01	0.01	<0.01
T. Petroleum Hydrocarbons (mg/l)	<1.0	<1.0	<1.0	<1.0
Total Phosphate (as P) (mg/l)	0.24	0.27	0.23	1.02
Sulfate (mg/l)	76.0	20.0	63.0	46.0
Surfactants (mg/l) (MBAS)	0.26	<0.10	1.20	2.45
Total Cyanide (mg/l)	0.03	<0.01	<0.01	0.04
Bicarbonate Alkalinity (as CaCO ₃) (mg/l)	134	101	279	236
Fecal Coliform Bacteria (MPN/100mls)	<2	<2	240	43
Total Oil & Grease	<1.0	<1.0	<1.0	<1.0
Total Metals: (mg/l)				
Cadmium	<0.01	<0.01	<0.01	<0.01
Calcium	28.7	6.44	65.3	46.3
Chromium	<0.03	<0.03	<0.03	<0.03
Chromium (hexavalent)	<0.02	<0.02	<0.02	<0.02
Copper	<0.05	<0.05	<0.05	<0.05
Iron	7.55	5.61	2.43	3.02
Lead	<0.04	<0.04	<0.04	<0.04
Manganese	0.64	0.67	3.03	0.14
Magnesium	4.00	5.96	4.33	3.49
Nickel	<0.02	<0.02	<0.02	<0.02
Potassium	9.60	3.80	13.2	18.0
Sodium	28.4	33.0	37.1	15.8
Total Organic Carbon (mg/l)	21	12	64	53

R.I. ANALYTICAL LABORATORIES, INC.



R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Woodard-Clyde Consultants
201 Willowbrook Blvd.
P.O. Box 290
Wayne, NJ 07470
Attn: Mr. Mark Houlday

DATE RECEIVED: 10/01/92
DATE REPORTED: 10/09/92
P.O. #:
INVOICE NUMBER: E5776

SAMPLE DESCRIPTION: One (1) sludge sample labelled SS1, location Production area

Subject sample has been analyzed by our laboratory with the following results.

PARAMETER	RESULTS
Total Cyanide	<6.9 mg/kg *
Total Metals:	
Cadmium	2.2 mg/kg*
Chromium	26.7 "
Copper	80.0 "
Lead	65.5 "
Nickel	15.5 "
Total Organic Carbon	1,665 mg/l**

* Calculated on a dry weight basis

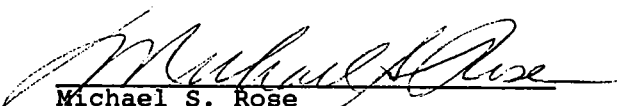
** Analysis performed on a liquid phase

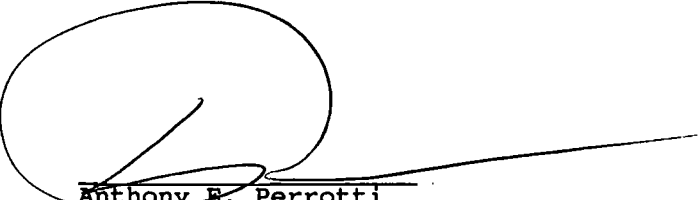
References: Guidelines Establishing Testing Procedures For The Analysis of Pollutants, 40CFR, Part 136, July 1986.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, U.S. EPA, SW-846, July 1982, second edition. Revised December 1987

If you have any questions regarding this work or if we may be of further assistance, please contact us.

Approved by:


Michael S. Rose
Laboratory Manager


Anthony E. Perrotti
President

cmc